

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.: 10/798,290

Filing Date: March 12, 2004

Applicant: Ian A. Marnoch

Title of Invention: THERMAL CONVERSION
DEVICE AND PROCESS

Docket No. 1686-2/EdeV

RESPONSE

TO OFFICE ACTION DATED MAY 31, 2007

ON-LINE SUBMISSION

Commissioner for Patents
U.S. Patent and Trademark Office
Arlington, VA 22202
U.S.A.

Dear Sir:

REMARKS

The Examiner has objected to the claims on the basis that claims 1-12, and 15-20 are anticipated by US 5,548,957 (Salemie), claims 15-16 and 18-20 are anticipated by US 3,888,084 (Hawkins) and claims 13-14 as being unpatentable over US 5,548,957 (Salemie). While the Examiner did not specifically address claim 17, the summary Disposition of Claims indicates that it was also rejected. The applicant respectfully traverses the objections.

Salemie is directed towards a system based on a refrigeration cycle for converting low grade heat into useful work. The system of Salemie is charged with a volatile refrigerant, and operates by the change in state of the refrigerant in vessels that operate as condensers and evaporators. The system drives a fluid driven motor/turbine by releasing heated

refrigerant from a tank acting as an evaporator and returning the refrigerant discharged from the motor to a tank acting as a condenser (col. 3, lines 60-62).

Hawkins is directed towards a thermal recovery system containing a refrigerant that is evaporated in a heat exchanger, applied to the rotor of a positive displacement motor as a pressurized gas, discharged to a condenser for condensation to liquid form. The liquid refrigerant is pumped by a Freon pump to the first heat exchanger for subsequent re-heating for evaporation (col. 3).

In both Salemie and Hawkins, the refrigerant working fluid is evaporated, expanded through a motor/turbine, condensed and re-evaporated. The refrigerant of Salemie and Hawkins is described as undergoing a change of state by evaporating a liquid into a gas, expanding the gas through a fluid motor/turbine, condensing the gas into a liquid and re-heating the liquid to evaporate it into a gas again.

In contrast, the present invention is directed towards a thermal conversion device in which a pressure driven actuator in fluid communication with a first vessel and a second vessel is driven in reciprocating motion. The reciprocating motion is effected by alternating positive pressure and negative pressure from the first and second vessels. Both of the vessels contain a gas under pressure that acts as the working fluid.

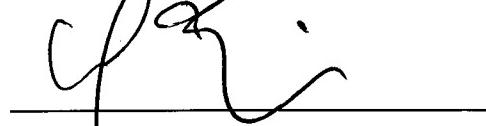
Neither Hawkins nor Salemie describes a reciprocating pressure driven actuator that is driven by the positive pressure of one vessel coupled with negative pressure of a second vessel. Neither Hawkins nor Salemie describes a thermal conversion device comprising a first vessel for containing a gas under pressure and a second vessel for containing a gas under pressure.

The applicant respectfully requests that the Examiner withdraw these objections.

Favourable reconsideration and allowance of this application are respectfully requested.

Executed at Toronto, Ontario, Canada, on August 29, 2007.

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